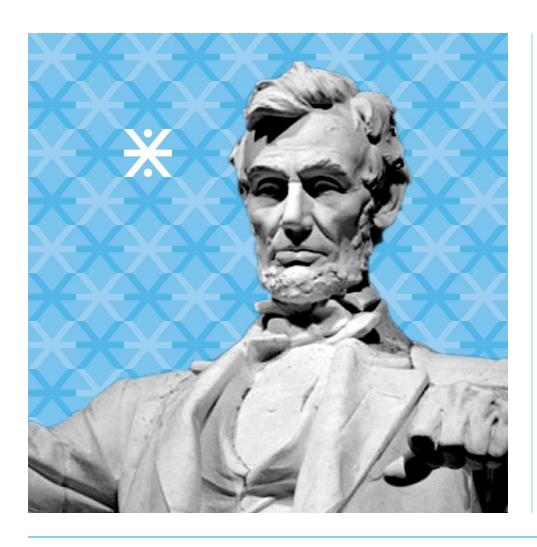


# **Should Federal Lending Programs Mitigate Concentration Risk?**

### **Think Piece**



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### **EXECUTIVE SUMMARY**

Concentration risk emerges when portfolios lack sufficient diversification, and have "all the eggs in one basket". Lenders in the private sector and their regulators take serious measures to mitigate concentration risk through diversification and the maintenance of sufficient liquidity, requiring lenders to alter their allocation of credit. For private sector lenders, concentration risk poses an existential threat to solvency.

Should risk managers of Federal loan programs react like their private sector counterparts when they face concentration risk? A Federal loan program cannot, independent of the government as a whole, find itself unable to meet its financial obligations. It is also endowed with a policy mission that is often the most crucial when markets are volatile. Furthermore, mitigating concentration risk through diversification may be inconsistent with the program's mission, statute, and Congressional intent. This suggests that Federal risk managers will often view concentration risk and mitigants like diversification differently than their private sector counterparts.

Concentration risk may be better recognized at the government-wide level rather than at the programmatic or agency level. Additionally, economy-wide and government-wide risk may be better understood as systemic risk, which eludes diversification.

#### **INTRODUCTION**

As the White House Office of Management and Budget (OMB), Treasury, Federal lending agencies, and the audit/Office of Inspector General (OIG) communities strengthen risk management for Federal loan programs, many risk managers are grappling with important questions around concentration risk:

- Should Federal risk managers measure and mitigate concentration risk through diversification?
- Should concentration risk be measured at the program level, agency level, or Federal/government-wide level?
- If risk managers elect to mitigate concentration risk through diversification at any level, what if diversification comes into conflict with programmatic mission and congressional intent?

Attitudes and opinions about these questions vary widely across the Federal landscape and lack clear consensus.

### What Is Concentration Risk? How Is It Mitigated in the Private Sector?

Concentration risk arises when a lender faces exposure to a single or predominant source of credit risk

liability.<sup>1</sup> The allocation of a disproportionately large amount of credit, such that the lender's overall financial well-being becomes intrinsically linked to the performance of a highly correlated group of borrowers, is one obvious way concentration risk arises on a lender's balance sheet. In short, concentration risk emerges when portfolios lack

#### **CONCENTRATION RISK**

Concentration risk emerges when portfolios lack sufficient diversification, and have "all the eggs in one basket."

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<sup>&</sup>lt;sup>1</sup> See Basel Committee on Banking Supervision, "Measuring and Controlling Large Credit Exposures," January 1991, at <a href="http://www.bis.org/publ/bcbsc121.htm">http://www.bis.org/publ/bcbsc121.htm</a>; and Basel Committee on Banking Supervision, "Studies on Credit Risk Concentration, Working Paper No. 15, November 2006, at <a href="http://www.bis.org/publ/bcbs">http://www.bis.org/publ/bcbs</a> wp15.pdf.

sufficient diversification. Concentration risk increases the likelihood of rare, extreme financial loss—or even insolvency—if the performance of a group of borrowers or counterparties suddenly perform very poorly.

There are a number of ways that lenders can be vulnerable to concentration risk. For example, if a lending institution extends a large amount of credit to a single borrower, it becomes highly dependent upon a single source of repayment. If insurance is obtained solely from one guarantor, then the policy holder's ability to receive reimbursement after an adverse event depends upon whether the guarantor has sufficient contingency reserves.

Various incidental factors may also contribute to the correlation of seemingly unrelated financial risks. For example, concentration risks arise when lending to borrowers who reside in the same geographic location or work in the same industry. Community banks frequently lend within certain geographical boundaries such that repayment depends upon the health of the local economies. A flood causing financial distress in a geographical area would become the single exposure threatening the financial stability of a local community bank. Likewise, credit unions have membership requirements defined by an occupational, associational, or geographic area affiliation driving potential concentration risk in from correlations in those areas. Mitigating concentration risks, therefore, is challenging given that seemingly independent financial decisions by lenders may become unexpectedly correlated.

### An Example of Addressing Concentration Risk in the Private Sector

Before a discussion on issues related to concentration risk mitigation in Federal credit programs, this section briefly provides some examples of how some private sector entities manage concentration risk.

The U.S. Government regulates all federally insured depository institutions (i.e. banks and credit unions) for safety and soundness. Among other things, these federal regulations are intended to prevent banks and credit unions from having a dangerous level of concentration risk. U.S. bank regulators have issued rules that generally disallow banks from making loans that exceed 15% of their total capital to a single borrower.<sup>2</sup> Similarly, credit unions have both dollar and percentage of net worth limits on various

### MITIGATING CONCENTRATION RISK

Bank regulators have issued rules that generally disallow banks from making loans to a single borrower that exceed 15% of their total capital.

categories of loans that can be made to a member. These requirements are enforced by the National Credit Union Administration.<sup>3</sup>

Prepared by Summit 3

<sup>&</sup>lt;sup>2</sup> See Office of the Comptroller of the Treasury, *Concentrations of Credit*, December 2011, at <a href="http://www.occ.treas.gov/topics/credit/commercial-credit/concentrations-portfolio-mgmt.html">http://www.occ.treas.gov/topics/credit/commercial-credit/concentrations-portfolio-mgmt.html</a>; and Federal Deposit Insurance Corporation, Laws & Regulations, Part 32—Lending Limits, Sec. 32.3, at <a href="https://www.fdic.gov/regulations/laws/rules/8000-7400.html#fdic8000lending32.3">https://www.fdic.gov/regulations/laws/rules/8000-7400.html#fdic8000lending32.3</a>.

<sup>&</sup>lt;sup>3</sup> See Credit Union National Association, "Limitations on Credit Union Member Business Lending Compared to the Commercial Loan Powers of National Banks," at

http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&cad=rja&uact=8&ved=0ahUKEwjo Kfg7PDOAhXLKh4KHUU3DtlQFgglMAE&url=http%3A%2F%2Fwww.cuna.org%2FWorkArea%2FDownloadAsset.aspx%3Fid%3D54664&usg=AFQjCNFVoW2Zxghf0BJgUGlqyv02 qOFow

While limitations on loan sizes and implicit diversification help safeguard against conspicuous concentration risks, regulators also monitor less obvious risks. For example, federal banking regulators, concerned about relaxed underwriting standards in commercial real estate (CRE), increased supervisory guidance in 2006 particularly for community banks with significant CRE concentrations. At the time, banks had originated numerous CRE loans located within the same geographic proximity, creating a great deal of concentration risk. This geographical concentration of CRE loans prompted regulators to require banks to review and submit their risk management strategies—especially if the amount of CRE lending in their portfolios exceeded 300% of total capital (equity and net worth).

In addition to diversification, lenders must maintain adequate reserves to safeguard against concentration risk. Specifically, depositories must maintain liquid reserves to buffer against circumstances when liquidating assets to meet the cash demands of depositors could be costly. Generally speaking, regulators pay attention to the extent their supervised entities have portfolios of assets that face rising exposures to adverse changes in financial market conditions that may be correlated.

# **Concentration Risk Can Trigger Systemic Risk Events**

Financial market collapses arguably can be described as either concentration risk or systemic risk events given the similarity in dynamics. For example, prior to the recent mortgage market crisis, local and regional housing markets in the United States rarely experienced simultaneous downturns. Although

### **SYSTEMIC RISK**

A sudden panic may cause participants to run or retreat from exposure to a financial asset or entity, thus generating more panic amongst sellers and more unwilling buyers.

mortgage-backed securities were structured to include mortgages from around the country to hedge these instruments from geographical risks, their performance was still linked to the rise in inventories of unsold houses that did occur in multiple states. Given the difficulty that sellers faced in attempting to liquidate their housing assets to cover mortgage obligations, prospective buyers postponed purchases as house prices fell further. Hence, the recent systemic mortgage crisis arguably can be explained by rising concentration risk resulting from a large exposure to deteriorating housing market conditions across the nation.

Systemic risk is the risk of a simultaneous collapse across sectors, regions, and or asset classes. This risk cannot be readily mitigated by diversification and is difficult to predict.

### CONCENTRATION RISK AND FEDERAL LENDING PROGRAMS

It is clear that many, if not most, Federal lending programs face concentration risk. For example, the Farm Services Agency portfolio at the U.S. Department of Agriculture (USDA) is highly concentrated in the agriculture sector of the economy. The student loan portfolio at the U.S. Department of Education is highly concentrated in higher education. The Federal Housing Administration (FHA) Mutual Mortgage Insurance Fund is highly concentrated in the single family housing market. While regionally and

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<sup>&</sup>lt;sup>4</sup> See Banking Agencies Issue Final Guidance on Concentrations in Commercial Real Estate Lending," press release, December 6, 2006, at <a href="http://www.federalreserve.gov/newsevents/press/bcreg/20061206a.htm">http://www.federalreserve.gov/newsevents/press/bcreg/20061206a.htm</a>.

<sup>&</sup>lt;sup>5</sup> Regulation D requires banks and credit unions to set aside reserves determined by the amount of covered deposits accounts and other liabilities assumed.

geographically diversified, these programs are concentrated into narrow asset classes and types of borrowers.

Additionally, some Federal programs have geographic concentration. For example, an international loan program may be concentrated in Central America for the purpose of interdicting the drug trade. Some domestic programs are concentrated in rural areas, others in urban areas, or along the coastal states.

# **Guidelines for Federal Credit Risk Managers**

Federal risk managers are guided by two primary sources of risk guidance:

- 1. Budget, management, and internal controls guidance issued by the OMB
- Accounting guidance followed by balance sheet preparers

### **FEDERAL GUIDELINES**

Federal credit risk guidelines do not address concentration risk.

Neither source listed above overtly guides risk managers to mitigate concentration risk; however, Enterprise Risk Management described in OMB Circular A-11, section 270.23 gives wide discretion to identify and mitigate risks that threaten mission delivery. While not an obvious threat to mission delivery for most, some risk managers may choose to nominate concentration risk as a threat to mission.

# How Federal Portfolio Managers Reserve for Credit Risk

According to the Federal Credit Reform Act of 1990 (as amended) and OMB Circular A-11, lifetime credit losses of a borrower or cohort of borrowers are estimated and funded by programspecific appropriations when loans are disbursed to the borrower. Original estimates are

# PROGRAMMATIC RECOURSE TO THE WHOLE GOVERNMENT

Individual loan & program performance typically enjoy full recourse the entire Federal balance sheet.

reestimated annually until the loan(s) are fully repaid. When loss reestimates differ from the original estimate, reserves are added to or subtracted from the program's reserve account (known as a "financing" account). Importantly, the source of these adjusting additions or subtractions are not typically taken from, and therefore not limited to, the program-specific appropriation. Instead, adjustments are typically taken from government-wide resources and are made possible by a mandatory appropriation<sup>6</sup>.

The budget of a federal agency and the insurance fund that is managed by the agency are typically separate. For this reason, deteriorating credit quality of any particular borrower(s) or program (and the financial impact of that deterioration under certain circumstances) generally does not affect the balance sheet or appropriation of any particular federal program or agency. (Conversely, improvements in borrower credit quality or program benefits are also unlikely to augment the funding of federal

<sup>&</sup>lt;sup>6</sup> The FHA may serve as an exception. The FHA is required by statute to maintain a capital reserve that is specific to its programs. However, should this reserve become exhausted, precedent reflects that appropriation is accessed to make up the shortfall.

programs.)<sup>7</sup> Also, when a private financial institution that has an insufficient amount of reserves (as mandated by a regulator or industry best practices) to absorb financial losses, it may be considered insolvent, which implies that it lacks the ability to repay its obligations. By comparison, a federal agency is unlikely to be insolvent given that it has the backing of the federal government in the form of borrowing authority from the U.S. Treasury and/or an appropriation mandated by statute under various defined circumstances. With this in mind, individual federal agencies or programs cannot become insolvent (as the term is used in the private sector) because they still retain the ability to repay their obligations, which are the obligations of the U.S. government.

### Federal Lending as a Whole Is Diversified

The U.S. Government manages a large number of loan programs. As of fiscal year end (FYE) 2015, there are approximately 39 active loan programs<sup>8</sup> that are making new loans and/or accepting new loan applications. These 39 loan programs extend approximately \$553 billion<sup>9</sup> in new loans annually. These loan programs can be broken into two broad categories:

- 1. Direct loan programs (loans extended from the government to the public)
- 2. Loan Guarantees (loans are extended from a private sector lender, but the repayment of the loan is fully or partially guaranteed by the Federal Government)

<sup>&</sup>lt;sup>7</sup> The FHA may serve as an exception. The FHA is required by statute to maintain a capital reserve that is specific to its programs. However, should this reserve become exhausted, precedent reflects that appropriation is accessed to make up the shortfall.

<sup>&</sup>lt;sup>8</sup> The Credit Supplement to the President's FY2017 Budget reveals 186 individual line items called "risk categories." Usually, distinct line items indicate unique programs; however, some distinct line items fall within a single program and are individual large loans or groups of loans that merit individual reporting. A breakdown of all of programs and line items (as defined by the Credit Supplement) is in Appendix A.

<sup>&</sup>lt;sup>9</sup> Defined as total disbursements to date as of FYE 2015.

Figure 1: Relationship between Reported Line Items and Number of Unique Programs<sup>10</sup>



Prepared by Summit 7

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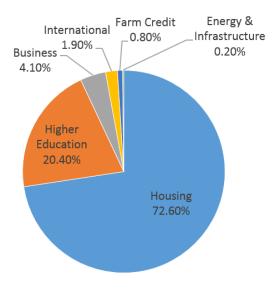
 $<sup>^{10}</sup>$  Derived from the Federal Credit Supplement to the 2017 President's Budget. A full list of programs and line items is in Appendix A.

These programs cover a broad mix of policy objectives that can be summarized into six areas:

- Housing
- Higher education
- Business
- Farm credit
- Energy and infrastructure
- International

The figure below depicts the dollar amount of loans disbursed in FY 2015 by policy area.

Figure 2: Percent of Total Disbursements for Active Federal Credit Programs by Policy Area in 2015<sup>11</sup>



This figure shows that 93% of all disbursements in FY 2015 were made for loans in the housing and higher education policy areas, of which housing comprises the overwhelming majority. These policy areas constitute a potential asset class concentration risk at the Federal level, mirroring a historical trend for Federal credit programs.

In force, the government extended approximately \$13.6 trillion in loans/guarantees between 1992 and FYE 2015. Of this amount, \$3.4 trillion are outstanding, and therefore at risk in 2015. The figures below depict all loan disbursements since 1992 by policy area as of September 30, 2015. These figures differ by including or excluding the balances of Ginnie Mae. When Ginnie Mae is added, the proportional Federal exposure to housing-related risk increases materially.

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 $<sup>^{11}</sup>$  Derived from the Federal Credit Supplement to the 2017 President's Budget. A full list of programs and line items is in Appendix A.

<sup>&</sup>lt;sup>12</sup> Derived from Table 20-2 of the Analytical Perspectives to the 2017 President's Budget.

<sup>&</sup>lt;sup>13</sup>Government Sponsored Entities (GSEs) like Freddie Mac and Fannie Mae are excluded from the figures and values provided in this document.

Figure 3: Percent of Total Disbursements for Active and Managed Federal Credit Programs by Policy Area, 1992–2015 excluding Ginnie Mae<sup>14</sup>

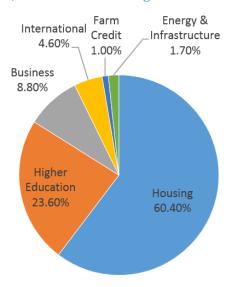
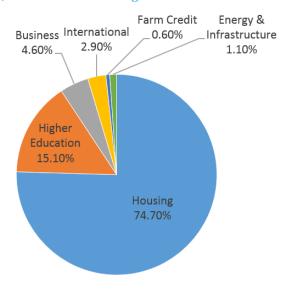


Figure 4: Percent of Total Disbursements for Active and Managed Federal Credit Programs by Policy Area, 1992–2015 including Ginnie Mae<sup>15</sup>



The figures above show, at the aggregate level, that the Federal government faces a large amount of concentration risk as a result of its exposure to the performance of the housing market. On one hand, the individual federal agencies have statutory mandates such that successfully achieving their mission objectives will result in a sustained concentration risk. On the other hand, when the financial risk managers at each federal agency or program observe increases in risk exposure, their reflex reactions

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<sup>&</sup>lt;sup>14</sup> GSEs like Freddie Mac and Fannie Mae are excluded from the figures and values provided in this document.

<sup>&</sup>lt;sup>15</sup> Ginnie Mae guarantees the timely payment of principal and interest payments on residential mortgage-backed securities (MBS) to institutional investors worldwide.

many be to mitigate the risk. The dilemma for federal risk managers, however, is that curtailment of risk-contributing activities is likely to conflict with the statutory missions of their agencies. Therefore, if concentration risk is to be mitigated at the program level, risk managers generally must be given the authority by Congress to implement risk mitigation measures that would conflict with the overall policy missions of the respective agencies or programs.

### Program-Level Credit Risk Error Is Much Greater than Government-Wide Error

Individual programs can exhibit high errors in loan performance and loss estimation in comparison to eventual performance. Error is defined as the deficiency or excess of funds that should have been reserved at obligation to cover losses, which eventually may have been corrected after a reestimate that occurred after having observed some performance of the loan. Table 1 identifies six loan programs with the largest errors, as indicated by net lifetime reestimates. Positive errors indicate that the government under-estimated the cost of the loan program, while negative errors indicate an overestimation of a program's cost.

Table 1: Six Loan Programs with the Largest Lifetime Reestimates from 1992 through 2015

Rank	Program	Net Lifetime Reestimates (Billions)	Total Disbursements to Date (Billions)	Lifetime Reestimates as Percent of Total Disbursements <sup>16</sup>
1	FHA-Mutual Mortgage Insurance			
1	(MMI) Fund	\$65	\$3,249	2%
2	Federal Family Education Loan	-\$60	\$1,011	-6%
3	Teacher Education Assistance	\$25	\$1,039	2%
4	Troubled Asset Relief Program	-\$20	\$64	-32%
_	Export-Import Bank of the United			
5	States	-\$7	\$280	-3%
6	Business Loans	\$7	\$424	2%

In contrast to these program level errors, when viewing all Federal lending programs as a single portfolio, the errors generally offset each other. The combined performance exhibits a net negative error with a magnitude much lower than most programs. Out of the \$13.6 trillion in disbursements through 2015, total lifetime reestimates (i.e., error) are -\$60 billion, or -0.4%. <sup>17</sup> This indicates that overall, the government slightly overestimated the risk of its loan portfolio through the end of FY 2015.



<sup>&</sup>lt;sup>16</sup> Negative lifetime reestimates indicate that risk was over-estimated at origination and loss reserves were subsequently reduced.

<sup>&</sup>lt;sup>17</sup> Some readers may prefer to define error in absolute value terms and request this measurement across all programs. While this does not represent the cost of the programs to the government, this metric is another option for evaluating error. The absolute value of total lifetime reestimates is \$353 billion, or 2.6% of total disbursements to date. The absolute error is larger than the net error, but still a small percentage of total disbursements to date.

### Choosing the Appropriate Level to Measure and Mitigate Concentration Risk

Determining whether to measure and mitigate concentration risk at the program level, the agency level, or the government-wide level is challenging. Each of the 57 existing loan programs with outstanding principal at risk may attempt to manage concentration risk. Alternatively, the individual programs could be aggregated to form one balance sheet, and the concentration risk of the federal government can be managed as a single entity. Can the definition of insolvency help decide whether to take a micro or macro approach? Congress has established procedures regarding how agencies account for the costs of credit programs; placed limitations (in some cases) on the premiums that can be charged for the guaranties; and established criteria upon when agencies can their borrowing authority. Given that some but not all of these specifications are standardized across agencies, risk tolerances vary among agencies and arguably should be measured and mitigated separately. By most objective standards, they cannot individually become insolvent. Federal loan programs are backed by the full-faith and credit of the United States. By this logic, risks may be considered as costs to the taxpayers but not necessarily an insolvency event as long as the federal government remains financially sound. In light of these issues, choosing the best vantage point for dealing with concentration risk issues is difficult.

### **Potential Conflicts: Mitigating Concentration Risk versus Achieving Policy Missions**

If concentration risk is observed, measured, and mitigated at the program level, how would this mitigation reconcile with the statute that governs each program, its mission, and congressional intent? Federal lending programs are enacted into law to accomplish a policy mission. This typically means lending, sometime in large numbers, to a class of borrowers that is targeted because of common features and characteristics. Repeating the examples from above:

- The Department of Education Federal Direct Student Loan program extends loans to students who universally use the capital for higher education.
- The Federal Housing Administration Mutual Mortgage Insurance program endorses loans exclusively for the purpose of purchasing or borrowing against single family homes.
- The Farm Services Agency Agricultural Credit Insurance Fund extends loans to farmers engaged in the agricultural sector.

In each of these programs, rules and statutes that *ignore* concentration risk drive the lending practices. For example, if risk managers were to conclude that the student loan portfolio had a high concentration within a particular state, it is unlikely that the law would allow the Department of Education to deny otherwise eligible borrowers in that state because risk managers want to mitigate geographic concentration risk. Further, even if risk managers concluded that loan performance was highly correlated, thus exhibiting concentration risk, statute would not allow the Department of Education to diversify into other asset classes (like small businesses or home mortgages) in an effort to mitigate concentration risk in the education sector. Such actions would be inconsistent with the mission and statute that guide these programs.



REGULATED LENDER FEDERAL LOAN RISK MANAGEMENT RISK MANAGEMENT Risk Managers at a local Risk managers at the U.S. bank review their portfolio Department of Education of community loans. review their portfolio of student loans. Managers detect high Managers detect high concentrations of loans in concentrations of loans in California. commercial retail. This is where the comparison breaks down. While regulated lenders are free to decline eligible borrowers on the basis To mitigate concentration To mitigate concentration of concentration risk, Federal risk, Managers recommend risk, Managers recommend lenders cannot. Furthermore, fewer commercial retailfewer California-based doing so may compromise a based loans. loans. Federal agency's mission.

Figure 5: Comparing Bank Risk Management to Federal Credit Risk Management

### **CONCLUSION**

Federal risk managers can elect to mitigate concentration risk through diversification if they deem it to be a threat to mission; however, asset or borrower diversification may actually pose a greater threat to mission than does concentration risk if mission requires narrow or targeted credit assistance. Further, given the "full faith and credit" of the United States that each Federal loan program enjoys—as well as the interdependency of finance and accounting within the Federal Government—solvency is not established at the program or agency level. Therefore, concentration risk does not usually pose a threat to solvency or liquidity at the program or agency level.

Mis-estimates for credit risk by Federal risk managers at origination are minimal when the portfolio is analyzed as a single, government-wide portfolio rather than distinctly by program.

For these reasons, program or agency level mitigation of concentration risk through diversification has limited purpose or merit when evaluated through traditional, private sector risk frameworks and has no clear link to mission. Further, Federal risk guidance from program managers ignores concentration risk, perhaps for good reason.

A few agencies and programs attempt to measure and mitigate concentration risk. Their policy missions, however, are mandated by Congress, meaning that the agencies may not be able to achieve an effective levels of diversification, that is, by reducing risk exposures to assets directly related to their mandates and increasing risk exposures to assets that they do not have the legislative authority to hold. Furthermore, an effective level of risk diversification at the aggregate level would not be possible given



the inability to deviate from mission objectives at the individual program levels. Mitigating concentration risk may instead belong to a government-wide analysis that should also consider the GSEs, insurance and similar financial assistance that pose recourse to the Federal balance sheet as a whole. A review of government-wide data reveals an asset class concentration in housing and higher education, representing the nation's public policy emphasis and the extent to which national resources are allocated towards facilitating these priorities. Concentration risk in these areas must be balanced against achieving these public policy objectives.

### ABOUT THE AUTHORS

### **Anthony Curcio**

Mr. Curcio is an expert in the Federal Credit Reform Act of 1990 and has led engagements across more than fifty Federal loan programs, developing, auditing, or validating predictive risk models for Federal credit. He has more than twenty years' experience in finance and financial markets.

Earlier in his career, Mr. Curcio served at OMB as a member of the "Credit Crew", where he guided multiple areas of Federal Credit program management, including credit subsidy cash flow model development, auditing, verification, and validation. He has a strong background in the audit, accounting, and budgeting requirements of Federal Credit programs.

Mr. Curcio is the co-author of the white paper "Fair Value in Federal Credit" and is a frequent lecturer on Federal Credit and model risk management in the Federal space. He earned an M.B.A. from Georgetown University, an M.A. from Johns Hopkins University, and a B.A. in economics from Centre College.

Mr. Curcio a Principal at Summit Consulting.

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#### **Special Thanks**

Darryl E. Getter, Ph.D., a Specialist in Financial Economics at the Congressional Research Service of the Library of Congress, contributed to this think piece. The views expressed in this report are solely those of the author and do not reflect any official opinions of the Congressional Research Service or the Library of Congress. Dr. Getter's topic areas include consumer credit markets, fair lending, prudential regulation of depository institutions, and selected financial market conditions. He is also an adjunct professor in the Economics Department at the University of Maryland--Baltimore County where he teaches classes in real estate economics and derivative securities. Dr. Getter worked as an assistant professor of economics at the U.S. Naval Academy, and later as a visiting economist at Freddie Mac. He later worked as a financial economist at the U.S. Department of Housing and Urban Development in the Office of Policy Development & Research as well as for the Federal Housing Administration. He briefly worked as a visiting economist at the Consumer Financial Protection Bureau in the Office of Research Markets and Regulation. Dr. Getter received his Ph.D. in economics from Washington University in St. Louis.

Mr. Ian Feller and Ms. Jaclyn Elliot, both of Summit Consulting, also contributed to this think piece.



## APPENDIX A: TABLE OF ALL FEDERAL CREDIT PROGRAMS AND RISK CATEGORIES FROM THE 2017 CREDIT SUPPLEMENT

Agency	Bureau	Program	Reporting Line Items*	Direct/ Guaranteed
USDA	Farm Service	Agricultural Credit Insurance	Farm Ownership	Direct
00071	Agency (FSA)	Fund	Turn Gwnership	211 000
USDA	FSA	Agricultural Credit Insurance Fund	Farm Operating	Direct
USDA	FSA	Agricultural Credit Insurance Fund	Emergency Disaster	Direct
USDA	FSA	Agricultural Credit Insurance Fund	Indian Tribe Land Acquisition	Direct
USDA	FSA	Agricultural Credit Insurance Fund	Boll Weevil Eradication	Direct
USDA	FSA	Agricultural Credit Insurance Fund	Seed Loans to Producers	Direct
USDA	FSA	Agricultural Credit Insurance Fund	Soil and Water	Direct
USDA	FSA	Agricultural Credit Insurance Fund	Credit Sales of Acquired Property	Direct
USDA	FSA	Agricultural Credit Insurance Fund	Conservation—Direct	Direct
USDA	FSA	Agricultural Credit Insurance Fund	Farm Operating—ARRA	Direct
USDA	FSA	Agricultural Credit Insurance Fund	Farm Ownership—Unsubsidized	Guaranteed
USDA	FSA	Agricultural Credit Insurance Fund	Farm Operating—Unsubsidized	Guaranteed
USDA	FSA	Agricultural Credit Insurance Fund	Farm Operating—Subsidized	Guaranteed
USDA	FSA	Agricultural Credit Insurance Fund	Conservation—Guaranteed	Guaranteed
USDA	FSA	Farm Storage Facility Loans	Farm Storage Facility Loans	Direct
USDA	FSA	Farm Storage Facility Loans	Sugar Storage Facility Loans	Direct
USDA	FSA	Emergency Boll Weevil Loan	Apple Loans	Direct
USDA	FSA	Emergency Boll Weevil Loan	Emergency Boll Weevil Loans	Direct
USDA	FSA	Commodity Credit Corporation Export Loans	GSM 102	Guaranteed
USDA	FSA	Commodity Credit Corporation Export Loans	Supplier Credit	Guaranteed
USDA	Rural Housing Service (RHS)	Multi-Family Housing Revitalization	Multi-Family Housing Relending Demo	Direct
USDA	RHS	Multi-Family Housing Revitalization	Multi-Family Housing Revitalization Seconds	Direct
USDA	RHS	Multi-Family Housing Revitalization	Multi-Family Revitalization Zero	Direct
USDA	RHS	Multi-Family Housing Revitalization	Multi-Family Housing Revitalization  Modifications	Direct
USDA	RHS	Rural Community Facilities	Community Facility Loans	Direct
USDA	RHS	Rural Community Facilities	Community Facility Loan Guarantees	Guaranteed
USDA	RHS	Rural Housing Insurance Fund	Section 502 Single-Family Housing	Direct
USDA	RHS	Rural Housing Insurance Fund	Section 515 Multi-Family Housing	Direct
USDA	RHS	Rural Housing Insurance Fund	Section 504 Housing Repair	Direct
USDA	RHS	Rural Housing Insurance Fund	Section 514 Farm Labor Housing	Direct
USDA	RHS	Rural Housing Insurance Fund	Section 524 Site Development	Direct
USDA	RHS	Rural Housing Insurance Fund	Section 523 Self-Help Housing	Direct



Agency	Bureau	Program	Reporting Line Items*	Direct/ Guaranteed
USDA	RHS	Rural Housing Insurance Fund	Single-Family Housing Credit Sales	Direct
USDA	RHS	Rural Housing Insurance Fund	Multi-Family Housing Credit Sales	Direct
USDA	RHS	Rural Housing Insurance Fund	Section 502 Manufactured Home	Direct
		-	Disaster Demo	
USDA	RHS	Rural Housing Insurance Fund	Guaranteed 502 Single-Family Housing, Purchase	Guaranteed
USDA	RHS	Rural Housing Insurance Fund	Guaranteed 502, Refinance	Guaranteed
USDA	RHS	Rural Housing Insurance Fund	Guaranteed 538 Multi-Family Housing	Guaranteed
USDA	RHS	Rural Housing Insurance Fund	Guaranteed 502 Single-Family Housing	Guaranteed
USDA	Rural Business- Cooperative Service (RBS)	USDA RBS	Rural Microenterprise Direct Loans	Direct
USDA	RBS	USDA RBS	Business and Industry Loans	Direct
USDA	RBS	USDA RBS	Intermediary Relending Program	Direct
USDA	RBS	USDA RBS	Rural Economic Development Loans	Direct
USDA	RBS	Rural Business	North American Development Bank Loan Guarantees	Guaranteed
USDA	RBS	Rural Business	Guaranteed Business and Industry Loans—ARRA	Guaranteed
USDA	RBS	Rural Business	Business and Industry Loan Guarantees	Guaranteed
USDA	RBS	Rural Business	Rural Business Investment Program	Guaranteed
USDA	RBS	Renewable Energy for America	Renewable Energy Loan Guarantees	Guaranteed
		Program	e,	
USDA	RBS	Biorefinery Assistance	Section 9003 Loan Guarantees	Guaranteed
USDA	Rural Utilities	Rural Water and Waste	Water and Waste Disposal Loans	Direct
	Service (RUS)	Disposal Loans		
USDA	RUS	Rural Electrification and	Electric Hardship Loans	Direct
		Telecommunications Loans		
USDA	RUS	Rural Electrification and Telecommunications Loans	Municipal Electric Loans	Direct
USDA	RUS	Rural Electrification and Telecommunications Loans	Treasury Electric Loans	Direct
USDA	RUS	Rural Electrification and Telecommunications Loans	FFB Electric Loans	Direct
USDA	RUS	Rural Electrification and	Telecommunication Hardship Loans	Direct
OSBA	1105	Telecommunications Loans	refection riardship Louris	Direct
USDA	RUS	Rural Electrification and Telecommunications Loans	Treasury Telecommunications Loans	Direct
USDA	RUS	Rural Electrification and	FFB Telecommunications Loans	Direct
		Telecommunications Loans		
USDA	RUS	Rural Electrification and Telecommunications Loans	FFB Guaranteed Underwriting	Direct
USDA	RUS	Rural Electrification and Telecommunications Loans	Electric Loan Modifications	Direct
USDA	RUS	Rural Electrification and Telecommunications Loans	Rural Telephone Bank	Direct
USDA	RUS	Rural Electrification and	Distance Learning and Telemedicine	Direct
LICDA	DLIC	Telecommunications Loans	Loans	Discot
USDA	RUS	Rural Electrification and Telecommunications Loans	Broadband 4% Loans	Direct
USDA	RUS	Rural Electrification and Telecommunications Loans	Broadband Treasury Rate Loans	Direct
USDA	RUS	Rural Electrification and Telecommunications Loans	Guaranteed Electric	Guaranteed
USDA	RUS	USDA RUS	Water and Waste Disposal Loan Guarantees	Guaranteed



Agency	Bureau	Program	Reporting Line Items*	Direct/ Guaranteed
USDA	Foreign Agricultural Service (FAS)	USDA FAS	PL 480 Title I Loans	Direct
Commerce	NOAA	Fisheries Finance	Individual Fishing Quota Loans	Direct
Commerce	NOAA	Fisheries Finance	Traditional Direct Loans	Direct
Commerce	NOAA	Fisheries Finance	Pacific Ground Fish	Direct
Commerce	NOAA	Fisheries Finance	Non-Pollock Buyback	Direct
Commerce	NOAA	Fisheries Finance	Pollock Buyback	Direct
Commerce	NOAA	Fisheries Finance	Crab Buyback	Direct
Commerce	NOAA	Fisheries Finance	Seine Buyback	Direct
DoD— Military Programs	Family Housing	DoD Family Housing Improvement Fund	Family Housing Improvement Fund Direct Loans	Direct
DoD— Military Programs	Family Housing	DoD Military Programs Family Housing	Family Housing Improvement Fund Guaranteed Loans	Guaranteed
ED	Office of Postsecondary Education (OPE)	College Housing and Academic Facilities	College Housing and Academic Facilities Loans	Direct
ED	OPE	College Housing and Academic Facilities	Historically Black Colleges and Universities	Direct
ED	OPE	College Housing and Academic Facilities	HBCU Hurricane Supplemental	Direct
ED	Office of Federal Student Aid	Teacher Education Assistance	TEACH Grants	Direct
ED	Office of Federal Student Aid	Teacher Education Assistance	Federal Direct Student Loans	Direct
ED	Office of Federal Student Aid	Federal Family Education Loan	Direct Participation Agreement Reestimates	Direct
ED	Office of Federal Student Aid	Federal Family Education Loan	Direct Standard Put Reestimates	Direct
ED	Office of Federal Student Aid	Federal Family Education Loan	FFEL Guarantees	Guaranteed
ED	Office of Federal Student Aid	Health Education Assistance Loans	HEAL Loan Guarantee	Guaranteed
DOE		Advanced Technology Vehicles Manufacturing Loans	Direct Auto Loans	Direct
DOE		Title 17 Innovative Technology Loan Guarantee Program	Section 1703 FFB Loans (Self Pay)	Direct
DOE		Title 17 Innovative Technology Loan Guarantee Program	Section 1705 FFB Loans	Direct
DOE		Title 17 Innovative Technology Loan Guarantee Program	Section 1705 Loan Guarantees	Guaranteed
HHS	Centers for Medicare and Medicaid Services (CMS)	Consumer Operated and Oriented Plan (CO-OP) Program Contingency Fund	Startup Loans	Direct
HHS	CMS	CO-OP Program Contingency Fund	Solvency Loans	Direct
HHS	CMS	CO-OP	Startup Loans	Direct
HHS	CMS	CO-OP	Solvency Loans	Direct
HUD	Public and Indian Housing (PIH) Programs	HUD PIH Programs	Title VI Indian Federal Guarantees Program	Guaranteed
HUD	PIH Programs	HUD PIH Programs	Indian Housing Loan Guarantee	Guaranteed



Agency	Bureau	Program	Reporting Line Items*	Direct/ Guaranteed
HUD	PIH Programs	HUD PIH Programs	Native Hawaiian Housing Loan Guarantees	Guaranteed
HUD	Community Planning and Development	HUD Community Planning and Development	Section 108 Community Development Loan Guarantee	Guaranteed
HHS	Health Resources and Services Administration	HHS Health Resources and Services Administration	Facilities Renovation Loans	Guaranteed
HUD	Housing Programs	HUD Housing Programs	Energy Retrofit Loans	Direct
HUD	Housing Programs	HUD Housing Programs	FFB Risk Sharing	Direct
HUD	Housing Programs	FHA-Mutual Mortgage Insurance (MMI) Fund	Mutual Mortgage Insurance Program	Guaranteed
HUD	Housing Programs	FHA-MMI Fund	MMI HECM	Guaranteed
HUD	FHA-General and Special Risk Insurance Fund	HUD FHA-General and Special Risk Insurance Fund	FHA-General and Special Risk Insurance	Guaranteed
HUD	Government National Mortgage Association	HUD Government National Mortgage Association	Guarantees of Mortgage-backed Securities	Guaranteed
DHS	Federal Emergency Management Agency (FEMA)	Disaster Assistance Direct Loan	Community Disaster Loan Program	Direct
DHS	FEMA	Disaster Assistance Direct Loan	Special Community Disaster Loans	Direct
DOI	Bureau of Reclamation	DOI Bureau of Reclamation	Reclamation Loans	Direct
DOI	Bureau of Indian Affairs (BIA)	DOI BIA	Indian Direct Loans	Direct
DOI	BIA	DOI BIA	Indian Guaranteed Loans	Guaranteed
DOI	BIA	DOI BIA	Indian Insured Loans	Guaranteed
DOI	Insular Affairs	DOI Insular Affairs	American Samoa Tobacco Loan	Direct
Department of State		Department of State	Repatriation Loans	Direct
International Assistance Programs (IAP)	USAID	IAP USAID	Loan Guarantees to Ukraine	Guaranteed
IAP	USAID	IAP USAID	Loan Guarantees to Israel	Guaranteed
IAP	USAID	IAP USAID	Loan Guarantees to Egypt	Guaranteed
IAP	USAID	IAP USAID	Loan Guarantees to Tunisia	Guaranteed
IAP	USAID	IAP USAID	Loan Guarantees to Jordan	Guaranteed
IAP	USAID	IAP USAID	Urban and Environmental Loan Guarantees	Guaranteed
IAP	USAID	IAP USAID	Development Credit Authority—Loan Guarantees	Guaranteed
IAP	OPIC	IAP OPIC	OPIC Direct Loans	Direct
IAP	OPIC	IAP OPIC	NIS Direct Loans	Direct
IAP	OPIC	IAP OPIC	Direct Loan Investment Funds	Direct
IAP	OPIC	IAP OPIC	OPIC Loan Guarantees	Guaranteed
IAP	OPIC	IAP OPIC	OPIC Investment Funds	Guaranteed
IAP	OPIC	IAP OPIC	NIS—Guaranteed Loans	Guaranteed
IAP	OPIC	IAP OPIC	Non-Honoring of Sovereign Guarantees	Guaranteed



Agency	Bureau	Program	Reporting Line Items*	Direct/ Guaranteed
DOT	Federal Highway Administration (FHWA)	Federal-Aid Highways	Transportation, Infrastructure, Finance & Innovation (TIFIA) Direct Loans	Direct
DOT	FHWA	Highway Infrastructure Investment, Recovery Act	TIFIA TIGER Direct Loans (ARRA)	Direct
DOT	FHWA	TIFIA TIGER	TIFIA TIGER Direct Loans	Direct
DOT	Federal Railroad Administration	TIFIA TIGER	Railroad Rehabilitation and Improvement Financing Direct Loans	Direct
DOT	Office of the Secretary	DOT Office of the Secretary	Minority Business Resource Center Loan Guarantees	Guaranteed
DOT	Maritime Administration	DOT Maritime Administration	Federal Ship Financing Loan Guarantees	Guaranteed
Treasury	Departmental Offices	Community Development Financial Institutions (CDFI) Fund	CDFI Financial Assistance Program	Direct
Treasury	Departmental Offices	CDFI Fund	Bond Guarantee Program	Direct
Treasury	Departmental Offices	Troubled Asset Relief Program (TARP)	Automotive Industry Financing Program	Direct
Treasury	Departmental Offices	TARP	Term-Asset Backed Securities Loan Facility (TALF)	Direct
Treasury	Departmental Offices	TARP Equity Purchase Program	Capital Purchase Program	Direct
Treasury	Departmental Offices	TARP Equity Purchase Program-	Automotive Industry Financing Program (Equity)	Direct
Treasury	Departmental Offices	TARP Equity Purchase Program	Legacy Securities Public-Private Investment Program	Direct
Treasury	Departmental Offices	TARP Equity Purchase Program	Community Development Capital Initiative	Direct
Treasury	Departmental Offices	Small Business Lending Fund	Small Business Lending Fund Investments	Direct
Treasury	Departmental Offices	GSE Mortgage-backed Securities Purchase	New Issue Bond Program SF	Direct
Treasury	Departmental Offices	GSE Mortgage-backed Securities Purchase	New Issue Bond Program MF	Direct
Treasury	Departmental Offices	TARP	FHA Refi Letter of Credit	Guaranteed
VA	Benefits Programs	Veterans Housing Benefit Program Fund	Acquired Direct Loans	Direct
VA	Benefits Programs	Veterans Housing Benefit Program Fund	Transitional Housing Direct Loan	Direct
VA	Benefits Programs	Veterans Housing Benefit Program Fund	Vendee Direct Loans	Direct
VA	Benefits Programs	Veterans Housing Benefit Program Fund	Acquired and Vendee Loan Reestimates	Direct
VA	Benefits Programs	Native American Veteran Housing Loan	Native American Direct Loans	Direct
VA	Benefits Programs	Native American Veteran Housing Loan	Vocational Rehabilitation	Direct
VA	Benefits Programs	Veterans Housing Benefit Program Fund	Housing Guaranteed Loans	Guaranteed
VA	Benefits Programs	Veterans Housing Benefit Program Fund	Guaranteed Loan Sale Securities — Vendee	Guaranteed
EPA	EPA	EPA	Abatement Control and Compliance Loan	Direct
SBA		Business Loans	7(m) Direct Microloans	Direct



Agency	Bureau	Program	Reporting Line Items*	Direct/
				Guaranteed
SBA		Business Loans	Economic Opportunity Loans	Direct
SBA		Business Loans	Handicapped Assistance Loans	Direct
SBA		Business Loans	SBIC Direct Preferred Stock and Fee Loans	Direct
SBA		Business Loans	7(m) Direct Microloans — ARRA	Direct
SBA		Business Loans	Intermediary Lending Program	Direct
SBA		Business Loans	7(a) General Business Loan Guarantees	Guaranteed
SBA		Business Loans	7(a) General Business Loan Guarantees—STAR	Guaranteed
SBA		Business Loans	Section 504 Certified Development Companies Debentures	Guaranteed
SBA		Business Loans	Section 504 Certified Development Companies Debentures—Delta	Guaranteed
SBA		Business Loans	SBIC Debentures	Guaranteed
SBA		Business Loans	SBIC Participating Securities	Guaranteed
SBA		Business Loans	SBIC New Market Venture Capital	Guaranteed
SBA		Business Loans	7(a) General Business—Delta	Guaranteed
SBA		Business Loans	Secondary Market Guarantee	Guaranteed
SBA		Business Loans	503 Local Development Companies	Guaranteed
SBA		Business Loans	504 Local Development Companies	Guaranteed
SBA		Business Loans	505 Local Development Companies	Guaranteed
SBA		Business Loans	506 Local Development Companies	Guaranteed
SBA		Business Loans	Secondary Market 504 First Mortgage Guarantees—ARRA	Guaranteed
SBA		Business Loans	ARC Loan Guarantees—ARRA	Guaranteed
SBA		Business Loans	7(a) General Business Loan Guarantees—ARRA	Guaranteed
SBA		Business Loans	Section 504 Certified Development Companies—ARRA	Guaranteed
SBA		Business Loans	7(a) Dealer Floor Plan	Guaranteed
SBA		Business Loans	7(a) Dealer Floor Plan—ARRA	Guaranteed
SBA		Business Loans	Section 504 Certified Development Companies Debentures—ARRA	Guaranteed
SBA		Business Loans	505 Commercial Real Estate (CRE) Refinance Program	Guaranteed
SBA		Business Loans	506 Commercial Real Estate (CRE) Refinance Program	Guaranteed
SBA		Business Loans	7(a) Business Loan Guarantees—ARRA	Guaranteed
SBA		Disaster Loans	Disaster Assistance Loans	Direct
SBA		Disaster Loans	Economic Injury Disaster Loans— Terrorist Attack	Direct
Export- Import Bank of the United States (EXIM)		EXIM	Direct Loans Export Financing	Direct
EXIM		EXIM	Guarantee and Insurance Reestimates	Guaranteed
FCC		FCC	Spectrum Auction	Direct

<sup>\*</sup> The Federal Credit Supplement to the President's Budget refers to these reporting line items as "risk categories."

